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| 10/764,423 | 01/23/2004 | Nelson Liang An Chang | 200310822-1 | 2026 |

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| EXAMINER | |
|---|---|
| HOLTON, STEVEN E | |
| **ART UNIT** | **PAPER NUMBER** |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/764,423 | CHANG ET AL. | |
| | Examiner | Art Unit | |
| | Steven E. Holton | 2629 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *17 December 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-6,8-37 and 39-65* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8-37 and 39-65* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

1. This Office Action is made in response to applicant's amendment filed on 12/17/2007. Claims 1-6, 8-37, and 39-65 are currently pending in the application. An action follows below:

### *Response to Arguments*

2. Applicant's arguments filed on 12/17/2007, in response to the election/restriction requirement have been considered. The Examiner withdraws the requirement for election/restriction. All claims will be considered within this action.

Applicant's arguments, filed on 6/21/2007, with respect to claims 1-6, 8-37, and 39-64 have been considered but are moot in view of the new ground(s) of rejection.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4, 5, 8-12, 27-29, 31, and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Mack et al. (USPN: 6,198,485), hereinafter Mack.

Regarding claims 1, 31, and 32, the claims are drawn to a method, associated system, and associated computer readable medium storing instructions for execution on a computer, and the claims are considered together. Mack discloses a method of

interfacing with a machine including steps of "at each of multiple capture times, contemporaneously acquiring a respective image from each of multiple fields of view defining an interactive space to create a respective set of contemporaneous images (Figs. 2, 4, and 5 depict two cameras, 220 and 230, capturing two fields of view at the same time, 510; col. 6, lines 1-10); detecting an input target in the acquired images (Fig. 5, element 520; col. 6, lines 10-16); computing two-dimensional coordinates of the input target detected in the acquired images (Fig. 5, element 530; col. 6, lines 17-29)". Mack does not expressly disclose creating a data structure linking the acquired coordinates with the times in which the coordinates were acquired and then processing the coordinates to determine input instructions for executing inputs with the machine. Mack discloses determining gesture inputs based on the movements of objects within the interactive space (col. 4, line 45 - col. 5, line 12). Such a gesture would require the system to determine and save the coordinates determined from the images in a data structure while knowing the time in which the coordinates are determined. Without time and coordinate information the gestures could not be determined by the system. Further, if a data structure saving both the location information and coordinate information from the different two dimensional coordinates was not created, the computer would be unable to manipulate the data for calculation of three-dimensional coordinates and determination of gestures for operation of the computer system. Therefore, the generation of a data structure linking the capture times with the two-dimensional coordinates for later processing to determine input instructions and

executing the instructions is inherent within the input system of Mack so that gestures can be determined to execute processes within the computer system.

Regarding claim 2, Mack discloses positioning the cameras (Fig. 2, elements 220 and 230) as a stereoscopic pair for acquiring images (col. 3, lines 45-49).

Regarding claim 4, Mack discloses the use of thresholding as an image processing technique (col. 6, lines 14-16).

Regarding claim 5, Mack discloses computing the centroid of an object based on the captured images (col. 5, lines 33-35).

Regarding claim 8, Mack discloses using calibration and corrections when calculating locations (col. 6, lines 26-29).

Regarding claim 9, Mack discloses computing the three-dimensional coordinates of the input targets based on the two-dimensional coordinates (Fig. 5, element 540; col. 6, lines 30-35).

Regarding claims 10 and 12, Mack inherently possesses some sort of data structure that links the timing of the three-dimensional coordinates with the coordinates. Without such a data structure, gestures and movements of the target through a gesture could not be determined by the computer system. Further, such a data structure would also include storing color recognition data or other image data resulting from the image processing steps.

Regarding claim 11, Mack discloses the use of color recognition (col. 6, lines 14-16).

Regarding claim 27, Mack discloses manipulating the image displayed on the computer screen based on the gesture inputs from the use (col. 4, line 45 – col. 5, line 12).

Regarding claims 28 and 29, Mack discloses displaying image data based on the input gestures and virtual image data based on the input from the user (col. 5, lines 1-7). The modified viewpoints including translation and zooming require a virtual image to be constructed by the computer for displaying information to the user.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mack.

Regarding claim 13, Mack discloses all of the limitations except, "wherein the spatiotemporal input data structure is constructed in the form of a linked list of data records."

The Examiner notes that the use of a linked list data structure to store input data would be a design choice for one skilled in the art. One skilled in the art would be motivated to utilize a linked list data structure because of the ability of a linked list to store a sequence of information in order with each piece of data being linked directly to the following (and sometimes preceding) data. It would be an obvious choice for one

skilled in the art to use a linked list to store a sequence of input positions associated in a sequence of time.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mack in view of Kumar et al. (USPN: 6204852), hereinafter Kumar.

Regarding claim 3, as discussed above, Mack discloses all of the information except, "wherein images of the interactive space are acquired from at least three different fields of view."

Kumar discloses a three-dimensional input system using three cameras (Fig. 1, elements 16, 18, and 19).

At the time of invention it would have been obvious to one skilled in the art to combine the teachings of Mack and Kumar. The motivation for combining the two references would be to use a different number of cameras or different camera set-up for determining the location of an input object within a three-dimensional input space. It would have been obvious that the use of a pair of binocular cameras or 3 cameras, or any other number of cameras would be a matter of design choice for determining input locations of an object within three dimensions. Therefore, it would have been obvious to combine the teachings of Mack and Kumar to produce the method as described in claim 3.

6. Claims 6, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mack in view of Pryor et al. (USPN: 7042440), hereinafter Pryor.

Regarding claim 6, as discussed above Mack discloses image processing techniques for determining coordinates, but does not disclose "segmenting foreground pixels from background pixels in the acquired images."

Pryor discloses a three dimensional camera based input system that includes image processing using subtraction of background pixels from foreground pixels in the received images (col. 12, lines 27-30).

At the time of invention it would have been obvious to one of ordinary skill in the art to modify the teachings of Mack with the teachings of Pryor. The image processing steps used by Mack could be altered to include the use of foreground and background separation and subtraction as described by Mack. The rationale would have been to use a known method of image processing for determining the location of a target or point of interest in an acquired image. Thus, it would have been obvious to modify the teachings of Mack with the teachings of Pryor to produce a method as described in claim 6.

Regarding claims 14 and 15, Pryor discloses determining trace routes of connected input targets in time and based on state changes of the input target (Fig. 7, element Step 7A).

7. Claims 14 and 16-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mack in view of Schmalstieg et al. (USPN: 6842175), hereinafter Schmalstieg.

As discussed above, Mack discloses obtaining two-dimensional and three-dimensional coordinates from pairs of contemporaneously obtained image data and processing that data to perform actions with the computer system. However, Mack does not expressly disclose determining traces of sets of connected data points.

Schmalstieg discloses a method of determining gestures made by the user input based on stroke information. Each stroke is a set of position and orientation data from the user in a sequence of time. Then, the strokes are processed to determine which gesture was made by the user and action is taken by the computer system based on the determined gesture (col. 21, line 61 – col. 22, line 14).

At the time of invention it would have been obvious to one skilled in the art to combine the teachings of Mack and Schmalstieg. Schmalstieg discloses methods of determining the locations of strokes detected by cameras for an input system. This method includes using sets of coordinate data defined as stokes to determine gestures used for operation of the system. Although, Schmalstieg deals with two-dimensional input the technique could be applied to each of the cameras used in the Mack system to produce the same results. The rationale for combining the teachings of these references would be to apply known techniques of using input trances as discussed by Schmalstieg to a three-dimensional input system used for computer control of Mack. Thus, it would have been obvious to combine the teachings of Mack and Schmalstieg to produce a method of gesture determination as described in claim 14.

Regarding claim 16, Schmalstieg discloses using bounding boxes for determining traces input by the user (col. 21, line 61 – col. 22, line 14).

Regarding claims 17, Schmalstieg discloses the bounding box being part of a two-dimensional input gesture form a single camera (col. 21, line 61- col. 22, line 14).

Regarding claim 18, the Examiner notes that it would be logically obvious to one skilled in the art that multiple bounding boxes from different camera angles could be used to determine a bounding region around a gesture made in three-dimensional space. Logically, by defining bounding areas based on images from each camera, the three-dimensional region defined by the intersection of the bounding regions would therefore be a bounding region in three-dimensions for the detected input traces and gestures.

Regarding claims 19 and 20, Schmalstieg discloses processing the traces to identify the traces and executing a predefined command based on the identified traces (col. 21, line 61- col. 22, line 14).

Regarding claim 21, Schmalstieg discloses using gestures to write letters and numbers using input gestures measured by the camera input system (col. 20, line 26 – col. 21, line 6).

Regarding claims 22, Schmalstieg discloses comparing the identified trace with objects in the virtual space and acting on the objects based on the identified trace (Figs. 13-16 show selection and deleting of objects in the virtual space based on identified traces and gestures; col. 18, line 12 - col. 20, line 25 described different gestures used to manipulate virtual objects in the computer system).

Regarding claims 23-26, Schmalstieg discloses using different recognized traces and gestures for activating different predefined computer instructions. Also, Schmalstieg discloses changing the operating mode of the device and commands being based on the current operating mode of the device when determining the gestures (Figs. 13-16; col. 18, line 12 - col. 20, line 25).

8. Claims 30 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mack in view of Turkowski et al. (USPN: 5,926,190), hereinafter Turkowski.

Regarding claim 30, as discussed above, Mack discloses all steps of inputting coordinate information, determining gestures based on the information and executing instructions based on the input gesture information. Further, Mack discloses changing the viewpoints of displayed objects based on the input gestures (col. 5, lines 1-12).

However, Mack does not expressly disclose generating different viewpoints based on interpolating between different fields of view.

Turkowski discloses a method of generating different viewpoints of an object for display based on interpolation between two known fields of view (abstract; Fig. 3; col. 4, lines 12-53).

At the time of invention it would have been obvious to modify the teachings of Mack with the teachings of Turkowski. The viewpoint modification methods of Mack could be changed to include generation of new viewpoints based on the interpolation methods of Turkowski. The rationale would have been to include known methods for generating new synthetic viewpoints from predefined viewpoints when viewing images

on a computer system and moving between new viewpoints when viewing the images. Thus, it would have been obvious to modify the teachings of Mack with the teachings of Turkowski to produce a method of interfacing with a machine as described in claim 30.

Regarding claim 65, Turkowski discloses that given two reference images other synthetic images can be calculated based on interpolation of the image data (Fig. 3; col. 4, lines 12-53). At the time of the invention it would have been obvious to one of ordinary skill in the art that the contemporaneously acquired images from the cameras of Mack could be manipulated to calculate synthetic images using interpolation. The synthetic images could be used to enhance detection of locations or determination of gestures based on changed viewpoints for acquiring information about the acquired images.

9. Claims 33-37, 39, and, 60-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deleeuw (USPN: 6,753,879) in view of Ellenby et al. (USPN: 5,682,332), hereinafter Ellenby.

Regarding claims 33, 63, and 64, the claims are drawn to a method of operation, an associated device, and an associated computer program stored on a computer readable medium, and the claims are considered together. Deleeuw discloses an augmented reality method of interfacing with a machine comprising displaying an image at a display location (Fig. 1, element 24 displays an image viewed by a user) with the display area between the viewing area (Fig. 1, element E) and the interactive space (Fig. 1, element 17 exists in the interactive space). Deleeuw also discloses acquiring

images of the interactive space (Fig. 1, element 22 is a camera; Fig. 3, element 82 is a step of acquiring images of the interactive space). Deleeuw further discloses detecting an input target in the acquired images, computing the coordinates of the target in the images (col. 3, lines 15-28), and then executing input instructions based on the coordinates of the target in the acquired images (col. 3, lines 29-35).

However, Deleeuw does not disclose acquiring images of the interactive space from a field of view directed towards the interactive space along an optical axis intersecting a central area of the display location.

Ellenby discloses an augmented reality display system wherein the camera system (Fig. 4, element 41) is location with an optical axis (Fig. 4, element 49) intersecting a central area of the display location (Fig. 4, element 42).

At the time of invention it would have been obvious to one of ordinary skill in the art to modify the teachings of Deleeuw with the teachings of Ellenby. The reflective glass position of Deleeuw used to provide a viewing location of the augmented reality display system could be replaced with a full display with camera directly behind the display of Ellenby. The motivation would be to provide an augmented reality system where the final viewed image appears as if the viewer was looking at the scene with augmented information (Ellenby; col. 3, lines 48-67). Thus, it would have been obvious to modify the teachings of Deleeuw with the teachings of Ellenby to produce a method of interfacing with a machine as described in claims 33, 63, and 64.

Regarding claim 34, Deleeuw discloses using a laptop or other portable electronic device for an augmented reality system (col. 1, lines 56-65).

Regarding claim 35, Deleeuw discloses the display location is embedded in a desktop surface (Fig. 1, elements 12, 24, and 28 have the viewing apparatus being inside of an enclosure that could be a desktop surface).

Regarding claim 36, Deleeuw discloses displaying the image on a surface (Fig. 1, element 24).

Regarding claim 37, Ellenby discloses acquiring images from a field of view disposed between the display location and the interactive space (Fig. 4, element 41 is disposed between the display location, element 42, and the interactive space, the area the camera is viewing).

Regarding claim 39, Deleeuw discloses that images can be acquired from multiple fields of view (Fig. 2, elements 22a, 22b, and 22c; col. 2, line 65 – col. 3, line 6).

Regarding claims 60 and 62, Deleeuw discloses interacting and manipulating virtual objects based on the inputs from the users hands based on input instructions derived from the positions of the users hands (col. 3, lines 29-67).

Regarding claim 61, Ellenby discloses generating an augmented reality image based on the real image viewed by the camera and virtual information added to the real image (col. 3, lines 49-67). This could replace the transmitted hand through the displayed virtual image of Deleeuw to produce images made of combinations of acquired images and machine generated virtual images.

10. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Deleeuw in view of Ellenby as applied to claim 39 above, and further in view of Turkowski.

As discussed above the combination of Deleeuw and Ellenby disclose all of the limitations except, generating different viewpoints based on interpolating between different fields of view. Deleeuw also describes generating fully virtual images without providing an augmented reality image (Fig. 5a; col. 4, lines 1-24).

Turkowski discloses a method of generating different viewpoints of an object for display based on interpolation between two known fields of view (abstract; Fig. 3; col. 4, lines 12-53).

At the time of invention it would have been obvious to modify the teachings of Deleeuw and Ellenby with the teachings of Turkowski. The interaction with manipulating virtual objects as described by Deleeuw could be modified include generation of new viewpoints based on the interpolation methods of Turkowski. The rationale would have been to include known methods for generating new synthetic viewpoints from predefined viewpoints when viewing images on a computer system and moving virtual objects within the scene to create new perspectives of the image. Thus, it would have been obvious to modify the teachings of Deleeuw and Ellenby with the teachings of Turkowski to produce a method of interfacing with a machine as described in claim 40.

11. Claims 41-44 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deleeuw in view of Ellenby as applied to claim 39 above, and further in view of Mack.

Regarding claim 41, as discussed above, the combination of Deleeuw and Ellenby disclose all of the limitations except, using calibration parameters for multiple fields of view for acquiring images of the interactive space.

Mack discloses an input system having multiple fields of view and for using calibration and corrections when calculating locations (col. 6, lines 26-29).

At the time of invention it would have been obvious to combine the teachings of Deleeuw, Ellenby, and Mack to produce a method of interacting with a computer using multiple fields of view. The multiple camera methods of Deleeuw to improve the calculation of the location of the user's hand in the interactive space could be improved using the calibration and correction steps described by Mack. The rationale would be to apply known methods of image analysis and calculation for the known result of improving the output of the calculations. Thus, it would have been obvious to combine the teachings of Deleeuw, Ellenby, and Mack to produce the method described in claim 41.

Regarding claim 42, Deleeuw discloses determining the user’s hand coordinates in three dimensions (col. 3, lines 22-28).

Regarding claim 43, Mack discloses the use of thresholding as an image processing technique (col. 6, lines 14-16).

Regarding claims 44, Mack discloses computing the centroid of an object based on the captured images (col. 5, lines 33-35).

Regarding claim 46, Mack discloses computing two-dimensional coordinates in each of the acquired images (Fig. 5, element 530; col. 6, lines 17-29).

12. Claims 45, 47, and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deleeuw in view of Ellenby in further view of Mack as applied to claim 43 above, and further in view of Pryor

Regarding claim 45, as discussed above the combination of Deleeuw, Ellenby, and Mack discloses image processing techniques for determining coordinates, but does not disclose "segmenting foreground pixels from background pixels in the acquired images."

Pryor discloses a three dimensional camera based input system that includes image processing using subtraction of background pixels from foreground pixels in the received images (col. 12, lines 27-30).

At the time of invention it would have been obvious to one of ordinary skill in the art to modify the teachings of Deleeuw, Ellenby, and Mack with the teachings of Pryor. The image processing steps used by Mack could be altered to include the use of foreground and background separation and subtraction as described by Mack. The rationale would have been to use a known method of image processing for determining the location of a target or point of interest in an acquired image. Thus, it would have

been obvious to modify the teachings of Deleeuw, Ellenby, and Mack with the teachings of Pryor to produce a method as described in claim 45.

Regarding claims 47 and 48, Pryor discloses determining trace routes of connected input targets in time and based on state changes of the input target (Fig. 7, element Step 7A).

13. Claims 47 and 49-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deleeuw in view of Ellenby as applied to claim 33 above, and further in view of Schmalstieg.

Regarding claim 47, as discussed above Deleeuw and Ellenby disclose all of the limitations except, "wherein identifying an input instruction comprises identifying traces of the input target in the interactive space."

Schmalstieg discloses a method of determining gestures made by the user input based on stroke information. Each stroke is a set of position and orientation data from the user in a sequence of time. Then, the strokes are processed to determine which gesture was made by the user and action is taken by the computer system based on the determined gesture (col. 21, line 61 – col. 22, line 14).

At the time of invention it would have been obvious to one skilled in the art to combine the teachings of Deleeuw, Ellenby and Schmalstieg. Schmalstieg discloses methods of determining the locations of strokes detected by cameras for an input system. This method includes using sets of coordinate data defined as stokes to determine gestures used for operation of the system. Although, Schmalstieg deals with

two-dimensional input the technique could be applied to each of the cameras used in the Deleeuw system to produce the same results. The rationale for combining the teachings of these references would be to apply known techniques of using input trances as discussed by Schmalstieg to a three-dimensional input system used for computer control of Deleeuw. Thus, it would have been obvious to combine the teachings of Deleeuw, Ellenby, and Schmalstieg to produce a method of gesture determination as described in claim 47.

Regarding claim 49, Schmalstieg discloses using bounding boxes for determining traces input by the user (col. 21, line 61 – col. 22, line 14).

Regarding claims 50, Schmalstieg discloses the bounding box being part of a two-dimensional input gesture form a single camera (col. 21, line 61- col. 22, line 14).

Regarding claim 51, the Examiner notes that it would be logically obvious to one skilled in the art that multiple bounding boxes from different camera angles could be used to determine a bounding region around a gesture made in three-dimensional space. Logically, by defining bounding areas based on images from each camera, the three-dimensional region defined by the intersection of the bounding regions would therefore be a bounding region in three-dimensions for the detected input traces and gestures.

Regarding claims 52 and 53, Schmalstieg discloses processing the traces to identify the traces and executing a predefined command based on the identified traces (col. 21, line 61- col. 22, line 14).

Regarding claim 54, Schmalstieg discloses determining alphanumeric characters based on the inputted traces (col. 20, line 26 - col. 21, line 6).

Regarding claims 55, Schmalstieg discloses comparing the identified trace with objects in the virtual space and acting on the objects based on the identified trace (Figs. 13-16 show selection and deleting of objects in the virtual space based on identified traces and gestures; col. 18, line 12 - col. 20, line 25 described different gestures used to manipulate virtual objects in the computer system).

Regarding claims 56-59, Schmalstieg discloses using different recognized traces and gestures for activating different predefined computer instructions. Also, Schmalstieg discloses changing the operating mode of the device and commands being based on the current operating mode of the device when determining the gestures (Figs. 13-16; col. 18, line 12 - col. 20, line 25).

## *Conclusion*

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven E. Holton whose telephone number is (571)272-7903. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Steven E. Holton
Art Unit 2629
January 20, 2009

/Bipin Shalwala/
Supervisory Patent Examiner, Art Unit 2629